3. The height to which the tetanic curve may reach, within certain limits, increases with the strength of separate irritations.—*DuBois' Archiv*, 1882, Heft 3 and 4.

ISAAC OTT, M.D.

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c.—GENERAL PATHOLOGY OF THE MENTAL SYSTEM.

THE RELATION AND PATHOLOGY OF THE PACCHIONIAN FORMATIONS AND THE SPACES BESIDE THE SINUSES OF THE DURA MATER.—W. Browning, M.D., Resident Physician to the German Hospital, New York, in an elaborate article in the *Amer. Jour. of Med. Sci.*, October, says: The Pacchionian granulations are small nodular growths of the (cerebral) arachnoidea. They are usually more or less clustered, and the larger ones are, as a rule, pedunculated. Luschka claims, it is true, that they can originate from the inner surface of the dura mater, but Ludwig Meyer gives a series of observations to the effect, that if the dura be removed with proper care, it is always possible to see the pedicle by which the granulations which have grown into the dura are still connected with the arachnoidea. They can originate as well from the arachnoidea where it bridges the sulci, as where it lies on the crest of the gyri. The conclusion of Meyer, that the granulations originate wholly from the cerebral arachnoidea, is surely correct. He also states that in the normal condition they are covered by an epithelial layer like the arachnoidea itself. On the authority of Key and Retzius it is stated that these granulations fill to little vesicles, on injecting the subarachnoidal space. A remark of Meyer tends to confirm this: "The collective villi are very often infiltrated with serum when there is marked œdema. They can be easily reduced by pressure or incision, like œdema of the arachnoid itself. These facts speak for the granulations being pouches of the arachnoidea." Key and Retzius state further that the cerebro-spinal fluid makes its way from the subarachnoidal space, through the Pacchionian granulations, into the venous spaces of the dura, and by ways as yet unknown into the lymph-spaces at the base of the brain, and those of the nasal mucous membrane.

It has long been known that the Pacchionian granulations are limited in their occurrence to certain parts of the arachnoidea; in greatest frequency, it is true, along the side of the longitudinal sinus, but, as especially emphasized by Meyer, also occurring in the middle or temporal fossa, over the anterior lobes, often 3, and

not rarely 4–5 cm. from the mesial line, along the transverse sinus, over the vermis superior of the cerebellum, and even at the posterior ends of the occipital lobe. In cases of adhesion and the like, it is probable that they may occur on all parts of the arachnoidea.

Trolard is accredited with having first called attention to the cavernous nature of these growths, and their connections with the neighboring venous vessels. He was hardly earlier than Key and Retzius, who mention especially the connections of these spaces with the veins of the dura and with the sinus. My own injections have shown that a large share of the granulations which penetrate the dura do present the venous nature, but that not all even of these do. Such granulations as have not penetrated or become attached contain neither veins nor venous cavities.

Trolard tells of spaces along the sides of the sinus longitudinalis. * * * I have had occasion to describe their occurrence along both sides of the sinus longitudinalis, and on both sides of the sinus rectus. Their largest size is at about the crown of the head, or opposite the middle of the longitudinal sinus. These spaces are very irregular in form and outline ; they are injectable from (or with) the sinus, and certainly communicate with the veins of the dura, and occasionally with an Emissaria Santorini. Many of the dural veins may in fact be said to empty into these parasinoidal spaces. On the contrary, the superior cerebral veins do not seem inclined to empty into them, but run along or through them to the sinus. The spaces therefore do not belong to the pia or cerebral system of veins, but to the dura veins. My own injections carry out the analogy that the parasinoidal spaces increase in size as life advances. Meyer claims that the sinuses of the dura mater can yield somewhat to cerebral pressure, and thus act as a regulator as well as the cerebro-spinal fluid. He includes the larger veins as possibly accessory in their action.

François Franck goes further, and excludes wholly the participation of the cerebro-spinal fluid in this action. The parasinoidal spaces must be important accessories to the veins and sinuses in this respect. They can dilate considerably, and should not be forgotten in considering this question. After this preliminary explanation, it is evident that the old definitions and classifications are insufficient, and that we can distinguish : 1, parasinoidal venous spaces; 2, granulations (so-called Pacchionian) of the arachnoidea ; 3, combinations of the two ; 4, depressions on the inner plate of the skull (foveæ glandulares of Mickel).

Considering the pathological side of these growths, the author says: "Their marked prevalence opposite venous spaces leads to their penetrating them, and even growing into the venous sinuses. It is, however, very rare that they penetrate the veins. I have never been able to find a marked case of it. Meyer's statement, that in cases of chronic meningeal irritation, the granulations penetrating the bone may themselves ossify, I can confirm. Instead of a depression of the bone, one then finds a slight elevation, and, as I have seen, likewise spicules of bone in the meninges. A variety of morbid conditions are known to favor their unusual development. One of these cases is chronic alcoholism. According to Hyrtl, they are found of specially large size in men who have suffered from headache, and in drinkers who have died of delirium tremens. In cases of brain-tumor—glioma, sarcoma, gummata of dura, carcinoma, etc.—one often finds an excessive development of the Pacchionian granulations noted. Atrophy of the brain, with inflammatory affections of the pia and arachnoidea may also act as a cause. In subjects who have suffered from a variety of mental and brain troubles, it is very common to find them strongly developed. Fröhlich emphasizes their marked increase in some fatal cases of cerebro-spinal meningitis. Archambault remarks that they have often been noted in children in cases of meningitis, and that the name aciniform has been proposed for the granular meningitis. These granulations consequent upon meningitis, seem to argue for an inflammatory origin, and it is probable that they are, in reality, somewhat different from the usual Pacchionian growths.

Respecting the increase of the Pacchionian granulations with age, he quotes Huguenin as follows: "In the senile brain, on account of diminution in volume of nervous elements, the variations in the width of the vessels can be larger than in middle life"; and adds: "The same holds true of the parasinoidal spaces." He concludes, that while hyperæmia must be a frequent cause, still the same results could be produced in other ways, though, perhaps, more slowly; especially rapid changes in blood-pressure in the vessels, without at any time reaching decided venous hyperæmia; in fact, any changes or disturbances of the local circulation, possibly even a change of consistency of the blood, or the pulling and pressing of the falx and venous spaces by tumors. The largest meningeal arteries, with their pulsation, are consequently more active in this respect than veins of the same size. The facts respecting clinical symptoms which may be traced to these granulations, he admits are

almost wholly wanting. Four points are referred to: 1. A few cases where large Pacchionian-like granulations pressing on the the ganglion Gasseri, or on one of the motor nerves of the eye in the same vicinity, have been the only discoverable cause of corresponding neuralgia or paretic symptoms during life. 2. It is a question whether these growths penetrating the dura produce headache. Most causes leading to this development, of themselves tend to produce headache. 3. The symptoms of sinus-thrombosis, from granulations penetrating the sinus. 4. The little flat elevation of bone along the median line at the crown of the head. That these growths do not often perforate the cranium, is due, perhaps, to several causes; whatever occasions their development has doubtless ceased to act before they get that far. Again, at the very point where their force slackens, they meet the hard external plate, and are able to go no farther. Concerning the part which the parasinoidal spaces play in pathology, he says: "A variety of facts demand that we look to these spaces as the place where many a sinus-thrombosis originates. It is known that a sinus-thrombosis may form by continuation from the afferent pia veins. It is also known that in the veins in other parts of the body spontaneous thrombosis very generally begins behind a valve vein. To this the necessarily sluggish circulation within the parasinoidal spaces closely corresponds." That a thrombosis can form in these spaces is proved, he cites a case of his own observation, and quotes Huguenin in further support of the same opinion. "If we review the cases where a thrombus filled but a part of the longitudinal sinus, a majority are found opposite the largest parasinoidal spaces." These spaces are again the chief depot, or half-way house, of many septic processes, progressing from outward (cranium and dura) toward the sinus and brain. The anatomical relations demonstrate the necessity of this, since the veins of the diploë and dura, the chief recognized path by which such processes make their way inward, nearly all communicate with, or empty into, these spaces. These, in turn, communicate with the sinus. It has even been mentioned in some cases of so-called sinus-phlebitis, that collections of pus were found in the dura beside the sinus.

The descriptions of the so-called varix of the sinus longitudinalis accord much better with the supposition that they develop from, or are appendages of, the parasinoidal spaces, and are, therefore, not true varices of the sinus. The author states that the new data used in this article were collected, either at the Anatomical Institute, Leipsic, or at the German Hospital, New York.

A Case of Aphasia Without Lesion of the Region of Broca.—*The Am. Jour. Med. Sc.*, Oct., gives the following abstract: At a meeting of the Société Médicale des Hôpitaux, held July 28th, M. D'Heilly presented the brain of a woman, twenty-four years of age, who had died at the Beaujon Hospital. She had been suffering from pulmonary tuberculosis, and was suddenly attacked with loss of speech, without apoplexy, without disorders of sensibility, or motion, or any of the special senses. She was markedly aphasic, but did not seem to appreciate the incoherence of her speech, and showed none of the impatience usual to aphasics. She could neither read nor write, but she seemed possessed of a certain degree of intelligence, and could play cards without making mistakes, and could recognize money. One day she recognized a friend whom she had not seen for a long time. About three weeks later she died from the progress of her pulmonary affection.

At the autopsy the absolute integrity of Broca's convolution was established, but a large area of cortical softening was found implicating the inferior parietal lobule and a portion of the first spheno-occipital convolution; the softening was limited to the gray matter.

The fourth branch of the left Sylvian artery contained a clot of the size of a small grain of shot; the other branches of the same artery were unobstructed.

The question arises, were the disturbances of speech in this case the result of enfeebled intelligence, or of the localization of the lesion in a special region of the cerebral cortex? The latter hypothesis is much more probable, as proved by the reports of cases under the title of verbal deafness and dumbness, in which interesting lesions of the sensory cortical centres have been found in physiological relation with the convolution of articulate speech.—*Gaz. hebd. de méd. et de chirurg.*, Aug. 4th.

Cerebral Localization; Sensory Functions.—Theodor Petrina (*Zeit. f. Heilk.*, ii) reports six cases of his own, in which there was disturbance of sensation in the limbs which had lost their motor power, when after death there was found only lesion of the cortex of comparatively old date, such that the influence of shock or pressure could be excluded, and the symptoms could be referred directly to the lesion. When sensation was affected the lesions were limited to a rather narrow region:

the lower part of Broca's convolution, the convolution of the island of Reil underlying this, the lower third of the ascending frontal, the anterior upper surface of the first temporal convolution, the upper third of both central convolutions, and the superior parietal lobule ; that is, all the convolutions in the psychomotor zone around the fissure of Rolando. The loss of sensation from lesion of these localities consisted in a more or less decided weakening of the sense of pressure, or of pricking, or of locality and temperature, or several of these. The senses of taste, smell, and color were not affected. These cortical anæsthesias differ in this limitation of loss of sensation from those hemianæsthesias which follow a destruction of the posterior third of the posterior limb of the intracapsule. Cortical lesions of the occipital convolutions give rise to no sensory [common sensation, R.] disturbance. He concludes, that the most anterior portions of the frontal convolutions and the surface of the entire occipital lobe are not the seat of sensory [common sensation, R.] centres.—*Boston Med. and Surg. Journal*, Sept. 14.

MONO-SPASM (ZYGOMATICI).—Under the title "A Contribution to Cerebral Localization," H. J. Berkley, M.D., Baltimore, reports in the *Medical News*, July 15, the case of a male, æt. seventy-three, for many years affected with cardiac disease both mitral and aortic; he was observed by Dr. Berkley to have a peculiar twitching of the left angle of the mouth, localized apparently in the zygomatic muscles. No other portion of the face participated in the mono-spasm, and with the exception of a slightly blank look on this side of the face, nothing else was observed. On inquiry it was learned that the twitching began suddenly some thirty months previous, unaccompanied by unconsciousness or pain, and had continued regularly since. No deviation or incoördination of the tongue, or disturbance of the voice, was noted; and absolutely no paresis of the extremities. He had been blind in the right eye for many years, but vision in the left was nearly normal, and ptosis was not present. His mental conditions was that of an old man in his dotage. Death occurred suddenly. The autopsy revealed on the right ascending frontal convolution, one and a half inches above the margin of the Sylvian fissure, in a location corresponding to the seventh centre of Ferrier, a nodule of calcareous degeneration, of nearly circular shape, three sixteenths of an inch from side to side, and of a correspond-

ing diameter from above downward. The depth was very slight; not greater than one half of the thickness of the cortical gray matter. It looked as if many months before there had been an occlusion, probably from embolism of one of the smaller surface arteries of the gray matter, which had since undergone calcareous degeneration, a result which not unfrequently occurs in like lesions. The left hemisphere, cerebellum, pons, medulla, and cord, were healthy. The cerebral arteries, anterior and posterior, were strewn with atheromatous patches, even in the smallest arteries visible to the eye, but no embolism or rupture was found. The membranes were normal and not adherent. The heart and great vessels were greatly diseased. Calcareous plates and atheromatous patches; and the auriculo-ventricular orifice completely surrounded by a bony ring. Dr. Berkley calls attention to the interest of the case concerning localization of the centres of the face, on account of the minute size of the lesion absolutely unaccompanied by other lesions, and because of the few known uncomplicated lesions of this portion of the motor zone of the brain. The small extent of the degeneration indicates that it was an irritative, not a destructive, lesion. The space involved could not possibly cover the entire surface which supplied motor impulses to the muscles that participated in the spasm, otherwise we would have had paralysis, not mono-spasm, of the zygomatici.

THREE CASES OF CEREBRAL LESIONS; CONTRIBUTION TO THE STUDY OF LOCALIZATION.—Drs. Verdalle and Prioleau, *Journal de médecine de Bordeaux*, No. 49, July 2, 1882.

CASE 1.—A patient, aged seventy, on May 10th, had sudden loss of equilibrium; fell, but did not lose consciousness. On admission to the hospital, was in a state of hebetude; did not answer questions distinctly; slight paresis existed on the right side; no deviation of the face, no sensory trouble; pupil contracted on the left side. Three days later contracture was observed both in the superior and in the inferior limbs of the right side; a comatose state; death followed two days later.

Autopsy.—Very marked congestion of the sinuses, and of the whole convexity. Meningeal hemorrhage on left side, extending from the fissure of Sylvius to the superior margin of the hemisphere, invading, in width, both the ascending frontal and parietal convolutions, and the anterior third of the first and second parietal. No other lesion of the cerebrum.

CASE 2.—A man, æt. thirty-nine, was admitted to the hospital on May 18th. An apoplectic attack occurred during the day, with coma; complete hemiplegia on the left side; paresis on the right. Sensibility was abolished on the left side, and slightly diminished on the right. The next day contracture, exaggerated on making passive movements, was observed on the right side. No change on the left. Death occurred on the night of the 19th or 20th.

Autopsy.—Right hemisphere: nothing on the surface; in the interior, a large hemorrhage, which had destroyed and softened the corpus striatum, the opticus thalamus, the internal capsule, and part of the external capsule; the walls of ventricle are, in great part, destroyed.

Left hemisphere: a pretty large meningeal hemorrhage extending across the fissure of Sylvius. In height it extends from the second temporal to the middle of the ascending parietal and frontal convolutions. In width it covers the third frontal, the foot of the ascending frontal and parietal, and the second parietal. No other lesion found in the left hemisphere.

CASE 3.—A woman, æt. thirty-six, was admitted on May 16, 1882, in a state of hebetude, persistent somnolency; complains of great pain in head; fever; irregularity of pulse, and of respiration; no motor nor sensorial troubles were observed. Death occurred during the night of the 17th–18th.

Autopsy.—Nothing in the right hemisphere.

Left hemisphere: purulent meningitis of the whole base; the pus is abundant in the meninges, and reaches the medulla. About the middle of the base the cerebral substance is so friable that it easily gives way by being touched. A longitudinal section at that level opens into a vast abscess, which almost occupies the whole sphenoidal lobe, and opens in the lateral ventricle by a sort of fistula, and from that point into the aqueductus of Sylvius, and into the fourth ventricle. There is caries of the temporal bone (petrous portion) and otitis interna suppurativa.

APHASIA; RIGHT HEMIPLEGIA.—Gautier, *Union médicale et scientifique du Nord-est*, No. 7, July 1, 1882. A man, aged forty-five, was admitted to the Hôtel Dieu, January 5, 1882. Fifteen days before his admission, sudden and complete right hemiplegia; loss of consciousness, and vomiting occurred. He had enjoyed perfectly good health before. Examination shows, besides the

hemiplegia, considerable diminution of sensibility on the paralyzed side—little to be noted respecting the face. Patient does not seem to understand, and repeated questions are answered by the word yes (*oui*) only. January 31st, muscles of right side of face contract imperfectly; pupils and movements of the tongue are normal; in the night, patient seems to try to talk; and after having been asked about ten times: "Are you doing well?" he answers: "I am doing well, yes." Cannot write; and a large eschar is discovered on the sacrum. February 1st, some convulsions; on the third, tracheal râle: death occurred on the 4th.

Autopsy.—Right hemisphere larger than left; weighs 460 grammes; the left, 410. On left side, convolutions much smaller than on opposite side; white softening of three different parts of left hemisphere. The first lesion occupies, vertically, the posterior extremity of the three frontal convolutions, and extends to the paracentral lobule, leaving the ascending frontal convolution untouched. The second focus occupies the superior part of the ascending parietal convolution. The third is limited in front by the posterior margin of the ascending parietal convolution, and posteriorly by the supra-marginal lobule. The deep focus occupies the whole thickness of the first frontal, the whole supra-marginal lobule; then a deeply-seated reddish tumor, as large as a hazel-nut, can be seen. There is a small hemorrhagic focus in the left side of the pons; the rest of the brain is healthy.

CHOREA IN THE NEGRO.—Dr. Wharton Sinkler, of Phila., states that the question of the frequency of chorea in the negro race has excited some interest since Dr. Weir Mitchell sent out his inquiry on the subject through the Smithsonian Institute, several years ago; the almost universal testimony being that the disease was very rarely met with in the negro. Forty-nine of sixty physicians had never seen a case in the black race, and the remainder considered it infrequent in that race. However, some physicians in Virginia regarded chorea as common in one race as in the other. Dr. G. W. Benton, a physician of large practice in a portion of Florida thickly populated with negroes, in thirty years' experience, informs Dr. Sinkler that he has never seen a case of chorea in a black. On the other hand, Dr. S. H. Stout, of Chattanooga, Tenn., states that he can recall twenty-one cases of chorea which have come under his observation. Of these, thirteen were black females, four white and three mulatto females

and one white male. Dr. Mitchell states "that the weight of evidence is in favor of the opinion that the black is less liable to chorea than the white." Dr. Sinkler has reached the same conclusion. Out of 319 cases of chorea treated at the Orthopædic Hospital and Infirmary for Nervous Diseases (Phila.), most of which he saw personally, but one belonged to the negro race, with a ratio of colored to white population of 1 to 24.32. The child was so light a mulatto, probably an octoroon, that it would readily be taken for a white child. He reports his only additional case from private practice. In this case, a female, aged nineteen, married, there were two conditions which predisposed to chorea, namely: an attack of acute rheumatism and pregnancy, also a blow on the wrist which might have acted as an exciting cause. Dr. Sinkler says that the only case he has met with in medical literature is one reported by Dr. Skinner, of Glasgow, Delaware, in a pure negro girl, aged eighteen years, who developed chorea after subacute rheumatism.—*Medical News*, Nov. 7.

GLIOMA OF THE PONS VAROLII.—By M. Pousson, Interne des hôpitaux, Paris, *Journal de Bordeaux*, No. 49. A child, aged nine years, was admitted in the service of Mr. Archambault (Hôpital des Enfants Malades) in the first days of October.

In September, '81, without any prodroma, sudden right hemiplegia occurred (extremities and face) with flexed muscles, deviation of tongue; no ocular or other symptoms were observed. On October 25th, symptoms of basal meningitis occurred; vomiting, constipation, rigidity of muscles of the back of the neck and legs, coma, high temperature, etc. There was a slight remission, during which patient recovered consciousness; but soon afterward the symptoms reappeared, and death followed. At first the diagnosis was syphiloma of base of brain, and mixed treatment was instituted, without any change. This failure of the treatment caused M. Pousson to think of tubercular deposit. At the autopsy, a tumor composed of three nodules was found on the superior border of the pons, composed of an abundant proliferation of the neuroglia, which had interrupted the continuity of the nerve fibres. Near the nodule, situated on the left side of the pons, was an hemorrhagic focus of new formation, as large as a hazel-nut. The meningitis which existed at the base of the brain, was occasioned by irritation caused by the tumor.

LARYNGISMUS OF THE ADULT.—In the *Annals of the Diseases of the Ear and Larynx*, Krishaber reports a case of the disease first described by Charcot under the name of laryngeal vertigo. It is a spasm of the glottis, which can be distinguished by its own character, and is not to be confounded with those noticed in locomotor ataxia or in hystero-epilepsy.

The patient, thirty-two years old, otherwise in perfectly good health, was suddenly seized with attacks consisting of dizziness or vertigo ; sometimes followed by loss of consciousness of short duration, which would occasionally recur several times in a day. The initial phenomenon has its seat in the larynx, and is characterized ; 1, by a slight but successive and rapid cough, like that noticed at the end of an attack of whooping-cough ; 2, by the sudden arrest of breathing. The whole motor respiratory apparatus is struck at the same time ; the loss of consciousness, when present, following immediately and lasting a few seconds only. No foaming at the mouth occurs, or involuntary micturition ; and immediately after the attack there is no stupefaction or lassitude as in epilepsy. There is no appreciable laryngeal trouble. It is only to these cases and to no other that Mr. Krishaber applies the denomination of laryngeal vertigo. The spasms and loss of consciousness consecutive to polypi or to other lesions of the larynx, are well known and are not to be confounded with the above affection, of which the cause is yet unknown. The treatment consists in cauterization of the larynx, counter-irritation, and large doses of bromide of potassium.—*Journal de médécine et de chirurgie pratiques*, T. liii, No. 7, July, 1882.

DIPHTHERITIC PARALYSIS.—Four successive cases presenting almost all the symptoms usually observed in that disease, have lately come under the observation of Dr. Damaschino at the Hospital Laënnec.

The first patient while convalescing from an attack of typhoid fever, suffered from a diphtheritic sore throat. Shortly afterward she was taken with a paralysis affecting the velum palati, remarkable from the fact that it affected one half of the velum only ; this is rather an unusual phenomenon as generally the paralysis affects the whole velum. In the cases where the paralysis is unilateral only, it may easily escape observation, as the patient, under such circumstances may swallow liquids without suffering from regurgitation through the nares ; for this purpose, they extend their

head backward and drink slowly; but as soon as they are ordered to keep their head straight, or to flex it slightly on the sternum and drink quickly, all the symptoms of the palatal paralysis become manifest; the troubles in swallowing become apparent, and the liquids are rejected through the nose.

Another patient contracted the disease from her child; soon afterward, the soft palate became paralyzed; in this case there existed the peculiar phenomenon that the sensibility was preserved. A few days after the involvement of the palate, she complained of formication and weakness in the inferior limbs; then violent palpitations supervened which were very painful; but disappeared shortly after their appearance. At last the eyes became involved, and troublesome defects of accommodation were added to those many and varied manifestations of diphthéritic paralysis. In a third case the diphtheritic inflammation of the throat was very grave, and in consequence the paralysis which showed itself some time afterward was more extensive; indeed, in this case, it was not the velum alone that was affected; but the loss of power extended to the inferior as well as to the superior limbs.

The complications were more extensive in a fourth case, that of a man about sixty years of age; here, after the diphtheritic attack, the soft palate was first involved; then weakness showed itself, both in the superior and inferior limbs; but shortly afterward, the paralysis was almost complete in all the limbs. Nevertheless, there were present these interesting facts: that the loss of power of the right arm was much greater than that of the left one, while the reverse existed for the inferior limbs, viz., that the left leg was much more impotent than the right one; the fact that the right arm and left leg were more affected than the two other limbs makes this case a type of cross paralysis, at least as far as its intensity is concerned. This was not all; after a short time there was considerable trouble in passing water, owing to the paralysis of the abdominal muscles. At last, the movements of the head were impossible on account of paralysis of the sterno-mastoids. All these symptoms were so grouped, that before his admission the patient had been taken for a general paralytic. These facts, says Dr. Paul-Lucas Championière, constitute a sort of table of all the mild forms of diphtheritic paralysis.—*Journal de médecine et de chirurgie pratiques*, T. liii, No. 7, July, 1882.

Ascending Paralysis (Landry's Disease).—*Gazette des hôpitaux*, No. 84, 22 Juillet, 1882.

This is an apyretic progressive disease with rapid and fatal termination. Dr. Dejérine has published two new cases with autopsy.

The first patient, without pathological antecedents, was admitted to the hospital while suffering from very slight weakness of the limbs for two days previous. In a few days a slight chronic state supervened, during the execution of movements; seven days after admission, sudden paraplegia, slight at first, became absolute, ascending to the trunk and superior limbs. The patient died, at the end of seven days after the beginning of the paraplegia, of asphyxia. Sensibility, nutrition, and the sphincters were normal during the whole duration of the disease. No fever except on the last day; electrical contractility very decidedly diminished.

The second case, in good health up to the time of admission for pain in the inferior limbs. Is taken with paraplegia; the paralysis ascends to the trunk and to the superior limbs; the patient dies in four days from asphyxia. In this case no electrical investigation was made. In his own cases Landry found it to be normal; and professing the same opinion, Duchenne (de Boulogne) thought he had a means of differential diagnosis from spinal paralysis in which the electrical reaction is rapidly diminished or lost. At the autopsy, Dejérine was unable to find any lesion in the cord. Nevertheless, in the anterior roots, and in the nerves, a few fibres had undergone a degenerative process similar to that found in the peripheral ends of nerves after section. In the presence of such negative results, Dejérine is willing to admit that a few of the large cells of the anterior horns have been affected, if not in their substance proper, at least in their function, but thinks that this affection is quite different from acute anterior myelitis with a progressive course. In acute myelitis the lesions are appreciable under the microscope; in the present disease, no lesion of the spinal cord is present.

General Subacute Anterior Spinal Paralysis.—*Gazette des hôpitaux*, No. 84, July 22, 1882. In the "*Revue clinique hebdomadaire*" the editor states that this type is considered by Dejérine as being identical with "progressive muscular atrophy with a rapid termination"; nevertheless, it is to be noted that in the latter

disease the morbid process never retrogrades, while in general spinal paralysis, as has been shown by Duchenne (de Boulogne), the progress of the paralysis as well as that of the atrophy may stop, then retrograde, and at last disappear altogether after months or years. The progress of this disease in a case which at the present time is in the service of Dr. Damaschino at the Hospital Laënnec, was similar to the description given by Duchenne.

The patient, æt. twenty-six, previously in good health, was taken suddenly with headache, vomiting, colic, and diarrhœa. During one week there occurred very severe diarrhœa—25–26 passages a day; weakness of legs from the very beginning of attack; formications; diminution of sensibility in the soles of the feet and in the fingers. Three to four weeks later complete paralysis of the lower extremities occurred; movement of vertebral column produced pain in the same region and in the waist. Two or three weeks later complete loss of power supervened in the superior limbs, movements of head being almost the only ones possible at that time. Sensibility to pain was normal; to heat and touch, apparently diminished in different parts of the limbs. All tendinous reflexes were abolished. Four to five months later the pain diminished, and voluntary movements began to reappear. At that time faradic examination produced scarcely any reaction in the muscles of the arms, and none at all in the inferior limbs; the amelioration continued in all the symptoms, and at the time of writing the patient could walk without support. This case is sufficient to show, says the reviewer, that the disease is not "progressive muscular atrophy." In fact, those two affections are quite distinct, the one from the other, as far as the prognosis and the symptoms are concerned. The only character that they possess in common, is the location of the lesion in the anterior horn of gray matter; but that does not imply identity of process.

POTT'S DISEASE; SUDDEN PARAPLEGIA; RAPID SPINAL EPILEPSY.—By Albert Mathieu (Interne des hôpitaux).

A young man, æt. twenty-three years, is admitted in the service of Dr. Proust, at the Hospital Lariboisièu.

Three weeks before admission he had a cold, with malaise and fever, and kept his bed. Two or three days later, when trying to get out of bed, he noticed that his legs were paralyzed; nevertheless he maintained that he had never noticed before any thing that could have made him foresee this paraplegia. He had been in good health, all his movements were free, and never had any pain in his

chest, his back, or his legs. From that time it became impossible for him to get up, and he began to suffer from girdle pains (douleurs en ceinture) in his legs, from painful contractures and lancinating pains; his bowels were habitually constipated, and his bladder became implicated.

His legs were flexed on his thighs, and these on the abdomen. It was easy to overcome the contractured flexor muscles without causing much pain. It was impossible for the patient to raise his foot from the bed, but flexion of the leg on the thigh was more easily performed, on account of the permanent tendency of the flexors to contracture. The patellar reflex was sensibly exaggerated, especially on the right side, and spinal epilepsy (foot clonus) was easily produced by forcibly bending the great toe backward; also predominating on the right side. Micturition was slow, difficult; the abdomen was tympanitic; the bowels constipated. As regards sensibility, it was evident that it has undergone serious modifications, for the patient complained of various pains, at times more or less severe, and of formication in the legs. Besides, anæsthetic spots were discoverable in various parts of the body, notably on the thighs and on the superior aspect of the legs, while sensibility was more or less preserved on the feet and on the inferior parts of the legs; but there its perception was greatly retarded, and oftentimes it is perverted. The patient ascribed pricking of the left to the right leg, and the different sensations of cold, warmth, pricking, and simple contact, were confounded with each other.

At the level of the abdomen patches of anæsthetic integument alternated with healthy ones in such a way that it was very difficult to demarcate a limit to the anæsthesia.

On the vertebral column there was an angular deformity, of which the patient did not suspect the existence, and which invaded three or four vertebræ, the fifth dorsal corresponding to the most prominent point of the angle. The patient having been transferred to Prof. Duplay's service, a plaster-of-Paris jacket was applied; nevertheless, all the preëxisting symptoms continued; soon the respiration became difficult, dyspnœa and cyanosis supervened, and five weeks after the appearance of the paraplegia the patient died, completely asphyxiated.

Autopsy.—A superficial eschar, as large as a silver dollar, exists on the sacrum. The body of the fifth dorsal vertebra, which corresponds to the angle of the deformity, is completely destroyed, together with its superior intervertebral disc. The dura

mater does not offer any particularity; it is not the same with the pia mater, which is of a milky-white color, and much-thickened, especially on its posterior part. This whitish coloration and the thickening are observable also on the inferior part of the medulla, on the pons, the base of the brain, and on the inferior and superior surfaces of the cerebellum. Various other parts about the fissure of Sylvius and the inter-hemispheric fissure present the same appearance; the cerebral and cerebellar tissues appear normal. The spinal cord had evidently been compressed about the level of the fifth dorsal vertebra, and presents at that point a circular depression. There is nothing to be noted above the constriction; but below it the antero-lateral column is thinner on the right than on the left side, and grayish, longitudinal tracts, with their base adherent to the pia mater, are found in it, which, probably are the indication of a beginning sclerosis. The substance of the spinal cord is, perhaps, a little more vascular than in the normal state. As conclusion, Mr. Mathieu points out the following facts as being of uncommon occurrence: the sudden paraplegia, followed in three weeks by spinal epilepsy, and the inflammation of the pia mater invading all of its spinal portion, the medullary, the cerebellar, and even the cerebral portions of the membrane. Nevertheless, the compressing exudation from the dura mater, specially mentioned by Michaud, did not exist in the present case, the compression having been performed by a purulent mass which existed in the vertebral canal at a level with the depression found on the cord. Very likely the pachymeningitis progressed very slowly, for the patient never complained of any cerebral trouble, or any pain in the upper extremities.—*Progrès médical*, No. 35, Sept. 2, 1882.

Latent Contracture in Pott's Disease.—Prof. Charcot, *Gazette des hôpitaux*, No. 73, June 24, 1882, in speaking of Pott's disease, shows how the involvement of the spinal cord could be the result, not of direct compression from displaced vertebræ, but in consequence of an inflammation of the meninges, with thickening; a sort of proliferating pachymeningitis, forming a tumor which might suppurate; hence irritation of the cord, transverse myelitis, with more or less complete interruption of the fibres; thence, also, all sorts of functional troubles in the parts situated below the lesions. All the limbs, or only the inferior limbs, are impotent, according as the lesion affects the cervical or the lower portions of the cord. In the first period of a para-

plegia, for example, certain interesting characteristics are present; but Prof. Charcot calls attention particularly to the motor phenomena. In this first period it is not a simple weakness, it is not merely a beginning paralysis with flaccidity of the muscles; there is something more, "a latent disposition to contracture." That predisposition becomes apparent in a more or less marked manner, as soon as the various tendinous reflexes are examined in the affected limbs. The latent contracture may exist even in individuals who still use their limbs perfectly, and it is important to note its presence, for in the course of Pott's disease it might prove to be the first step toward an absolute paralysis with contracture. It might also prove to be the remains of that same paralysis which has disappeared. In both cases its characteristics are quite identical. If, then, the patellar tendon is percussed, the reflex is found to be more energetic than in the normal state; if the percussion is repeated at short intervals, the extensor muscles of the thigh become more and more excited, and at a given moment they may enter into actual contracture, which in its turn may invade the neighboring muscles. Phenomenon of the same order, spinal epilepsy, can also be observed in Pott's disease of the spine. Such are the most simple symptoms, and those most easily made out in latent contracture.

Pseudo-Hypertrophic Paralysis.—In a clinical lecture, Dr. Damaschino presented to the class two new cases of pseudo-hypertrophic paralysis, of which he has already spoken in another number of this journal. Although somewhat different in their clinical aspect, those two cases are interesting in many respects. In the first case, the diagnosis is made easy by some interesting and characteristic symptoms: his peculiar gait strikes the observer's attention immediately, and not less than his enormous calves; his buttocks are soft and pendulous; his brachial biceps has disappeared, while the forearm muscles are preserved. This fact is to be noted also, that the atrophy, as well as the hypertrophy, is very nearly symmetrical. From a differential diagnostic point of view, it is important to note, that the facial muscles are healthy; it is known to-day that it is by the muscles of that region that the progressive muscular atrophy begins in children. In the posterior region, the muscles of the vertebral groove have diminished in size, and, as a consequence, there is lordosis; the pectorals, except their superior fibres, have completely disappeared; there is an accumulation of

fat under the skin, which by its bluish coloration indicates that there exists a tendency to blood stasis. The history of the case reveals that the patient appeared well developed, but that he began to walk while nineteen months old. At ten years, he was easily tired, and his calf muscles appeared enormously developed; the disease progressed up to the fifteenth year. At that time he could not get up without help when sitting on the floor. Actually, although eighteen years old, he can accomplish this act only by a series of very complicated movements. In this case, there is no possible doubt about the diagnosis.

The same thing could not be said of the second case, although most of the symptoms were in accordance with the phenomena peculiar to the disease. A young man, twenty-two years old, began at thirteen to feel tired easily; soon after he had a certain tendency to walk on the tips of his toes; then the weakness invaded the arms and the sacro-lumbar muscles—actually, the whole muscular system is affected to such a degree that the patient cannot get up from his chair, and when standing, he walks with just the same peculiar gait observed in the first patient. Although the symptoms are different in the present case, nevertheless they belong to the same disease, and it is known that this affection can show itself under four different forms. In a first form all the muscles are atrophied; in a second form, while some of the muscles are atrophied, others are in an apparent state of hypertrophy. In a third form, a few muscles only are involved, and in the last form, the least common of all, the predominating element in the alteration of the muscles, is a certain tendency to sclerosis, which gives to the muscular reaction an elastic character quite peculiar to this form. In this affection, heredity plays an important part. In fact, this patient is the brother of three younger sisters, who are all suffering, more or less, from the same disease.—*Journ. de méd. et de chirurgie pratiques*, T. l, No. 7, July, 1882.

Remarks on Pseudo-Hypertrophy of the Muscles.—Prof. Schultze, of Heidelberg, questions the correctness of Prof. Pekelharing's interpretations in a "case of spinal-cord disease, with pseudo-hypertrophy of the muscles" (*Virch. Arch.*, Bd. 89), when he says that the anterior and inner ganglia cells in one section are much less distinctly defined than are the central cells, while in another section the loss of cells is more marked on the right than on the left, and that in the former section the central

canal is compressed and surrounded by a decided collection of nuclei. "All these statements," says Schultze, "are correct, yet any one who has seen many normal preparations knows that these so-called abnormalities may be seen in the healthiest subjects. It is truly a scientific misfortune, that under normal conditions individual variations are found respecting the quantity of glia cells collected around the central canal. They were considered by Michaud as cause of tetanus, by Elischer as the incitant of chorea, and now they are actually connected with muscular pseudo-hypertrophy. The greatest marvel is, that when they really increase in a pathological manner neither tetanus, chorea, nor even pseudo-hypertrophy of the muscles, result; at most, a degenerative muscular atrophy following, when, involving the anterior horns, they produce a disappearance of the latter. The remaining changes described by Pekelharing consist in distention of blood-vessels—an unimportant fact—and scarcity of ganglion cells in the anterior and median portions of the anterior horns. As if ganglion cells were not always scarce in these portions!" Schultze considers that this case confirms the view that the spinal cord, particularly the anterior horns, is normal in this disease, and says: "Were it not to be feared that the views of Pekelharing might bring new uncertainties into the theories of the disease, it would not be necessary to emphasize the facts. "I hold," he continues, "that, from the progressive conditions of our knowledge of the pathology of the spinal cord, on the one hand, and the numerous investigations concerning pseudo-hypertrophy of the muscles on the other, the question is *fully decided* that the latter disease has nothing to do with the spinal cord. The grounds are as follows: Pseudo-hypertrophy of the muscles is clinically, and, as shown by the examinations of the muscles, also anatomically, a completely independent disease. The individual cases are often similar in their smallest details; nervous phenomena are never present in uncomplicated cases, nor bulbar paralysis. Nearly always it is a disease of children, or, at least, occurs during the years of development. The muscles are not changed, as in acute or chronic polio-myelitis. The fibres are in part hypertrophied, have always the normal striation; the nuclei are not in excess, even when a larger number are smaller than normal; there is present a surplus of true normal fatty tissue or connective tissue between the individual fibres; dilated fatty degeneration of the fibres is not present. In short, there is exhibited to the observer a simple picture of muscles in which a number of fibres

are replaced to some extent by fat and normal connective tissue, while the fibres themselves are for the most part in a state of simple atrophy; to some extent, however, entirely normal, or in fact hypertrophied, but not exhibiting the appearance of muscles after degeneration of their nerve fibres.

"In agreement with the above are the facts that a reduction in function and diminished effect from electrical excitation are found, but no paralysis, and no degeneration reaction."

Schultze states that in a recently examined case he found the normal formula of contraction on careful testing with the galvanic current.

PSEUDO-HYPERTROPHIC PARALYSIS.—Dr. Edge exhibited at the Manchester Med. Soc. a case of the above disease, in a girl aged eight. The infrequency with which this affection attacks girls was pointed out, and attention was drawn to the severity of the case, girls being usually affected much less severely than boys. The case was remarkable, also, on account of the facial muscles being enlarged.—*Brit. Med. Jour.*, July 29, 1882, p. 169.

OSSIFYING SPINAL PACHYMENINGITIS IN A DOG.—A four-year-old dog suffered for two weeks, apparently from an influenza. It grew weaker daily. Posterior paralysis and, finally, complete paralysis of the legs developed. The animal then died. *Post-mortem* showed wide-spread catarrhs and broncho-pneumonia. On opening the spinal cord, evidences of a diffuse myelitis were found, while in the thickened dura mater were numerous bony plates one to one and a half inches long.—*Jour. Comparative Med. & Surg.*, July, 1882, p. 264.

THE NERVOUS SYMPTOMS OF MYXŒDEMA.—Dr. W. B. Hadden, London (*Brain*, July), gives the following summary of the general features of the disease: Throughout the body there is a solid œdema, affecting the skin and connective tissue. The parts, however, are not anasarcous, or, in other words, they do not pit on pressure. The facies are pathognomonic. The expression is pallid and mask-like; the features broad, puffy, and coarse; the nostrils swollen; the lower lip thickened, everted, and pendulous; the mouth widened transversely. Over the cheek and nostrils there is a well-defined red patch, contrasting with the pallid, porcelain-like area beneath the lower eyelid. The tongue, fauces,

and palate are also swollen; the speech is slow, nasal, monotonous; the hands and feet are coarse, shapeless, and broadened transversely; the skin is dry and scaly, perspiration and the excretion of sebaceous matter being almost suspended. The thyroid gland is much diminished in size, and the subclavicular fossæ are often filled in with soft masses. The hair, teeth, and nails share in the general malnutrition. The urine contains no albumen, except in the later stages—then, as it were, an accident. The quantity of the urea excreted is remarkably lessened. The temperature is almost invariably sub-normal, and there is a constant sensation of cold. The bodily movements are performed slowly, though usually without imperfection. Falls, however, sometimes occur, and are dependent on the irregular action of the muscular groups, which are physiologically antagonistic. In short, there is often some degree of incoördination. The muscles, as in ataxy, lack tone, but are never paralyzed. The tendon reflexes are, in the author's experience, preserved intact. Lightning-like pains, similar to those experienced in tabes dorsalis, are occasionally observed. Common sensation is generally much impaired, apparently never annihilated, but blunted and retarded. Subjective sensations, such as "pins and needles," are very commonly experienced. In the later stages of the disease the special senses are liable to become affected. Visual disorders—in Hammond's case consisting of double optic neuritis, with blurrring of objects and occasionally double vision—are by no means constant, and may even be absent up to the last. Deafness is more common. Subjective auditory sensations (tinnitus) are described. The senses of taste and smell are liable to impairment. Bulbar symptoms have been described, and exophthalmus. Fatigue, on the slightest bodily exertion, is a very constant symptom in myxœdema. The most ordinary duties of life, such as dressing, are not only performed with great slowness, but entail an amount of lassitude quite out of proportion to the muscular effort put forth. The patients are consequently inert and sluggish, and indisposed for any exertion, however trifling. Headache, sometimes of a very severe character, is very commonly found to be present. Somnolence during the day is a very frequent symptom; but sleep at night is generally disturbed by unpleasant dreams, from which the patient awakens much startled and terrified. There is always very marked intellectual lethargy. The thoughts are evolved slowly, and often a distinctly prolonged interval elapses before the nature of a question addressed is grasped by the patient. Mem-

ory, according to some observers, for recent events in particular, is in most cases impaired ; aphasia, in the strict sense of the term, is of doubtful occurrence. The almost constant existence of emotional disturbances is noted. Occasionally these patients have what they call "nervousness," consisting of morbid fears and impulsive tendencies. True insanity in the later stages of myxœdema has been observed several times ; when it occurs, it is usually with hallucinations of hearing and sight.

The principal symptoms of the disease are summed up by the author under the following heads: 1. Slowness of bodily movements. 2. Slowness of intellectual operations. 3. Constantly subnormal temperature. 4. Diminished excretion of urea. 5. Solid œdema of the skin and connective tissue. 6. Diminished size of thyroid gland. The author believes : 1. That in the early stages myxœdema is essentially a disease of imperfect nutrition, dependent probably on generalized angio-spasm. 2. That the solid œdematous condition of the skin and connective tissue is due to a form of lymphatic obstruction which may also be ascribed to vasomotor influences, and that the accumulated products undergo changes which result in the formation of mucin. 3. That the condition of the thyroid gland is also to be explained on the vasomotor hypothesis. 4. That the more severe mental symptoms, such as insanity, occurring in the later stages of myxœdema, are due to alterations in the brain itself. 5. That although myxœdema is a distinct morbid entity, it is probably intimately allied to certain other disorders, such as sporadic cretinism and scleroderma. 6. That the solid œdema, which is universal in myxœdema, may be localized to various parts of the body, such as the tongue and extremities. 7. That the primary and essential lesion probably exists in the peripheral sympathetic system, and perhaps, too, in the supreme centre in the medulla oblongata, the last supposition being based on the occasional occurrence of bulbar symptoms in myxœdema. W. R. BIRDSALL, M.D.

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d.—MENTAL PATHOLOGY.

DELIRIUM FROM GALL-STONES.—Cases of this kind are not exceptional, but are so infrequent as to be of interest. Dr. W. J. Moore (*Dublin Journal of Medical Science*, August, 1882) reports a case in which a woman was attacked by delirium during the passage of gall-stones through the common bile duct. During the de-